Least-cost Planning in Regulated Power Systems – the US Policy Example

Berlin, March 22, 2017

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Integrated Resource Planning (IRP) is a planning process, required by statute or rule, that requires a utility to take a long-term view (20-30 years) of its resource needs and alternative ways to meet those needs.

In addition to the long-term view, a short-term action plan, and in some cases a resource acquisition process, usually accompanies the plan, and an update to the plan is typically required every 2-4 years.

Traditionally, IRP was focused on the addition of new resources to meet demand, but now demand side resources are also considered within the process.

In addition, planning process provides information to the public about the utility system and allows for public involvement, either during the planning process or once a plan has been drafted.
Integrated Resource Planning Requirement

“Utility integrated resource plans shall evaluate renewable energy, energy efficiency, load management, distributed generation and conventional supply-side resources on a consistent and comparable basis and take into consideration risk and uncertainty of fuel supply, price volatility and costs of anticipated environmental regulations in order to identify the most cost-effective portfolio of resources to supply the energy needs of customers. The preparation of resource plans shall incorporate a public advisory process.”

NMSA Section 62-17-10 (emphasis added).
Utility must set forth (NM example):

- A description of existing electric supply-side and demand-side resources,
- A current load forecast,
- A load and resources table,
- Identification of resource options,
- A description of resource and fuel diversity,
- Identification of critical facilities susceptible to supply-source or other failures,
- A determination of the most cost effective resource portfolio and alternative portfolios,
- A description of the public advisory process,
- An action plan, and
- Other information that the utility finds may aid the commission in reviewing the utility’s planning processes.
  - 17.7.3.9B NMAC
How does IRP work (cont.)?

• Utility takes existing information about different scenarios (and public input if applicable) and runs numerous portfolios through its modeling software

• These scenarios include energy efficiency requirements from statute, regulation, and may model different levels of energy efficiency investment

• Modeling results show, among other things, expected resource additions and dates those would be needed, present value cost of the different portfolios, CO2 emissions over certain period, water usage...

• Utility then selects most-cost effective portfolio consistent with regulatory and other requirements and files with the regulatory body

• Different approval requirements at this point make some IRPs more of a planning exercise than a meaningful commitment (e.g. submission for acceptance versus approval, tied to RFP process...)
Where is IRP?

- As with much of U.S. energy policy, IRP regulated on a state-by-state basis so there are many models throughout the country – with some states not having IRP at all.
- Also differs to some extent depending on whether the state has a regulated or deregulated market.
- Some states, in particular in deregulated markets, that do not have IRP may have long-term procurement planning or similar requirements:
  - Usually shorter planning periods
  - Updated more frequently
- Internationally, IRP is also used - for example, South Africa, British Columbia, others?
Consideration of Energy Efficiency: Some good and bad examples

- Treat energy efficiency as a load decrement – OK
  - New Mexico Example: looks only at statutory requirement for energy efficiency (3% of revenues)
  - Some modeling of different efficiency scenarios, but only as a function of load forecast, not as resources
  - Does not consider how much cost-justified energy efficiency could be accomplished outside of statutory requirements

- Treat energy efficiency as an equal resource – BEST!
  - PacifiCorp example: models energy efficiency in a comparable manner to supply side resources
  - Allows energy efficiency resources to compete with other resources equally
IRP can be a very helpful tool, but...

- IRP can provide information about decision making that is useful to efforts to incorporate more energy efficiency
- IRP is a very helpful tool, but it does not constitute the entire solution
- In states where efficiency is not modeled as a resource, or where the utility constrains energy efficiency to the minimum required, for example, IRP can provide information, but it does not solve underlying problems and may support an inaccurate narrative
- In many U.S. states, decoupling of utility revenues from sales is the critical step to achieving higher levels of energy efficiency
Conclusion

- IRP can provide a great deal of useful information for advocates and policy makers.
- Designing IRPs to ensure that energy efficiency is considered equally with supply-side resources can make IRPs an effective place to demonstrate the value of energy efficiency.
- Real value depends on how the process informs decision making!
Thank you!

Please contact me with any questions.

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